LMV BATTLEFIELD AMBULANCE

Designed for Care.
Engineered for the Battlefield.

FROM COMMON PLATFORM TO COMPLETE BATTLEFIELD AMBULANCE CAPABILITY

EMPL SDE EKA

01 The case in brief

The Light Mobility Vehicle programme will replace the British Army's ageing Land Rover and Pinzgauer fleets with a common platform family spanning nine operational variants. Its success will depend on combining the efficiencies of a common base vehicle with specialist capabilities designed around the needs of each operational role.

The Battlefield Ambulance is among the programme's most demanding specialist variants. It must combine the mobility, protection and supportability of the wider fleet with a controlled environment for casualty evacuation and care. The body, chassis interfaces, clinical accommodation, power, environmental control, communications and support arrangements must perform as one integrated vehicle.

The medical mission must drive the vehicle architecture from the outset. The required level of in-transit care, casualty configuration and operating conditions will determine workspace, access, medical equipment, electrical demand, payload and the evidence needed for acceptance. A production-representative first vehicle will be essential to validate these decisions on the physical platform before serial manufacture begins.

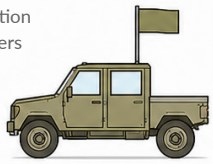
EKA, EMPL and SDE give OEMs a coherent route from ambulance architecture to an accepted and supported vehicle. EMPL contributes established military ambulance-body engineering and production experience. EKA Limited provides UK specialist-vehicle integration, supplier coordination, production support and through-life engineering. SDE, as part of EKA Group Holdings, connects systems engineering, safety, Human Factors, EMC/E3 and trials to the evidence required for acceptance.

LMV General Purpose Vehicle (GPV)

CBP closed-cab: driver + 3 passengers
Basic CIS integration
Common to all LMV variants:
24V power distribution

LMV Command & Control Vehicle (C2V)

CBP: driver + 3 passengers
Complex CIS integration
SWE for ≥2 passengers



LMV Utility Vehicle (UV)

CBP Enhanced Lift: driver + codriver
Basic CIS integration
Cargo lift ≥2T load/≥2T palletised load

LMV Equipment Support Vehicles (ESV)

CBP Enhanced Lift: driver + codriver
Basic CIS integration
ES STE stowage

LMV Battlefield Ambulance (BFA)

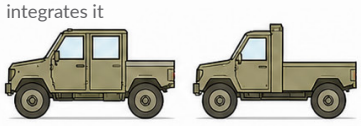
CBP Enhanced Lift: driver + 2 medical crew
Basic CIS integration
MEDEVAC cab for
≥1/≤4 casualties

LMV Troop Carrying Vehicle (TCV)

CBP Enhanced Lift: driver+co, ≥4/≤6 passenger
Basic CIS integration
Pax cab

LMV Mission Systems Vehicle (MSV)

Not a specific variant, the User down-selects a cab as requirements mature and integrates it



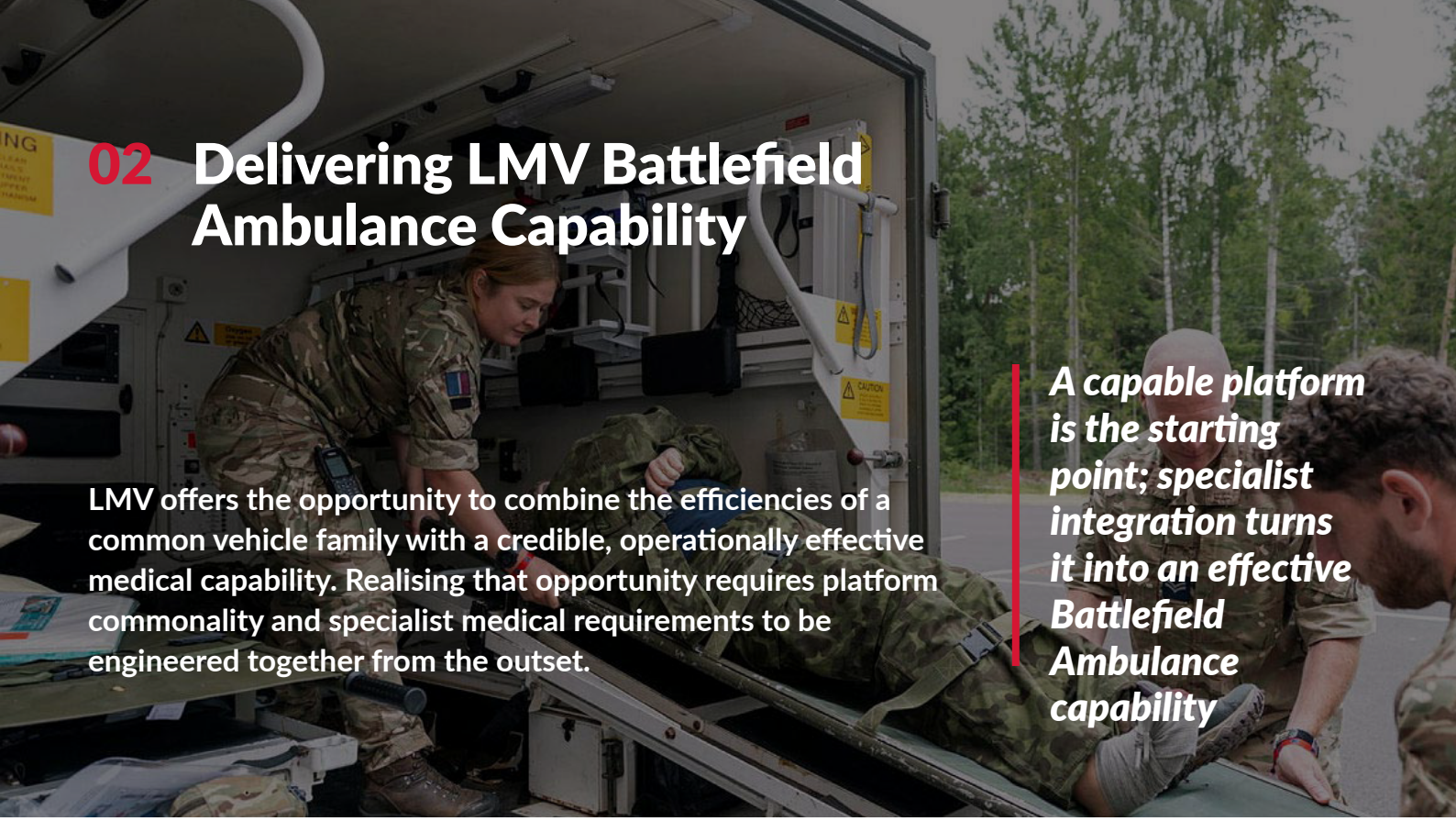
LMV Tactical Mobility Vehicle (TMV)

CBP Weapon at Readiness: driver + 3
Basic CIS integration
Pintle GPMG/HMG/GMG
CH47 internal load

Enhanced Protection Vehicle (EPV

Armoured CBP: driver + 3 passengers
Basic CIS integration
STANAG LV protection
Replaces LR SNATCH

Drawing on two decades of collaboration, EKA and EMPL give LMV bidders a lower-risk route to an integrated, supportable Battlefield Ambulance with meaningful UK content.



02 Delivering LMV Battlefield Ambulance Capability

LMV offers the opportunity to combine the efficiencies of a common vehicle family with a credible, operationally effective medical capability. Realising that opportunity requires platform commonality and specialist medical requirements to be engineered together from the outset.

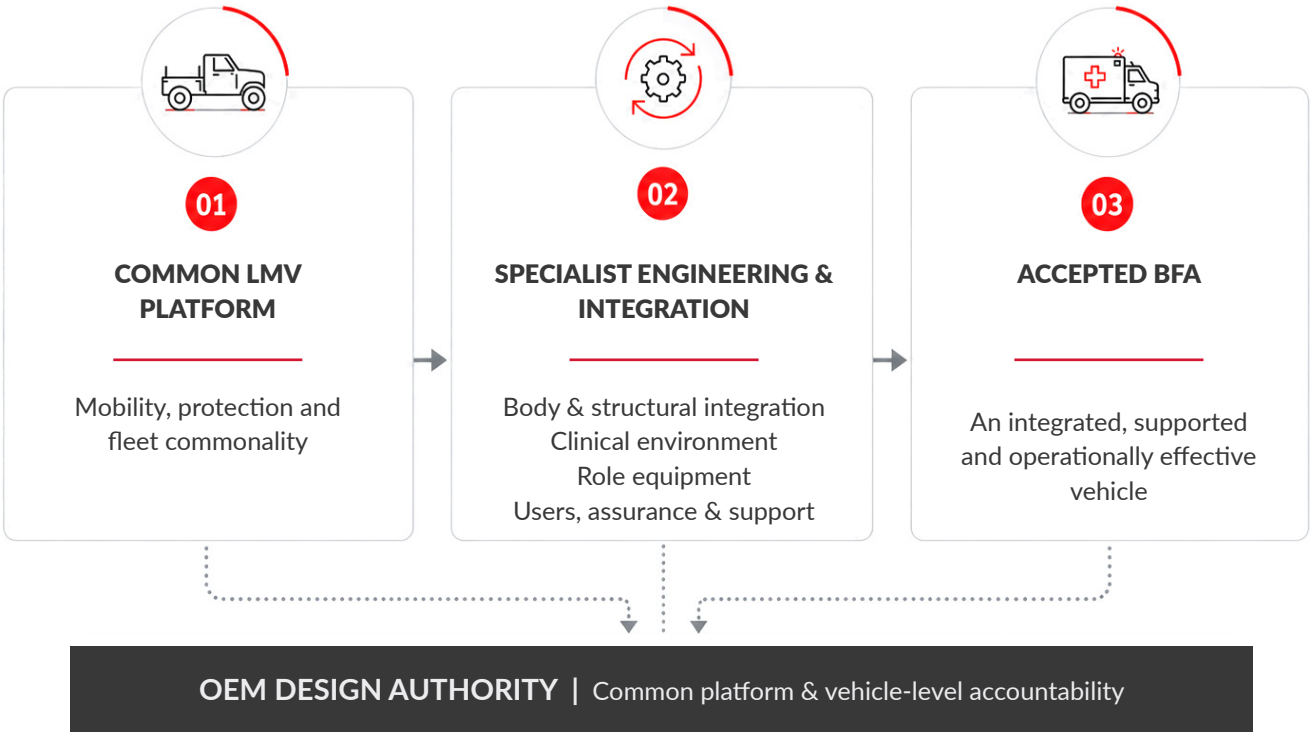
A capable platform is the starting point; specialist integration turns it into an effective Battlefield Ambulance capability

Specialist variants concentrate engineering and programme risk. A new body, subframe, equipment fit, power demand or crew task can change structural loads, mass distribution, electromagnetic behaviour, maintainability and the acceptance evidence inherited from the base platform.

Clear responsibility at every interface is essential. The vehicle OEM should retain control of the common platform, fleet interfaces and overall Design Authority, while an integration partner takes responsibility for a defined Battlefield Ambulance package and coordinates specialist suppliers across design, build, assurance and support.

Early specialist involvement gives bidders greater freedom to resolve risks before the design becomes fixed. It allows payload, space, power, chassis interfaces, user needs and acceptance requirements to be addressed as one coherent system—reducing late redesign and strengthening confidence in delivery.

Commonality creates the foundation; specialist integration delivers the Battlefield Ambulance capability.



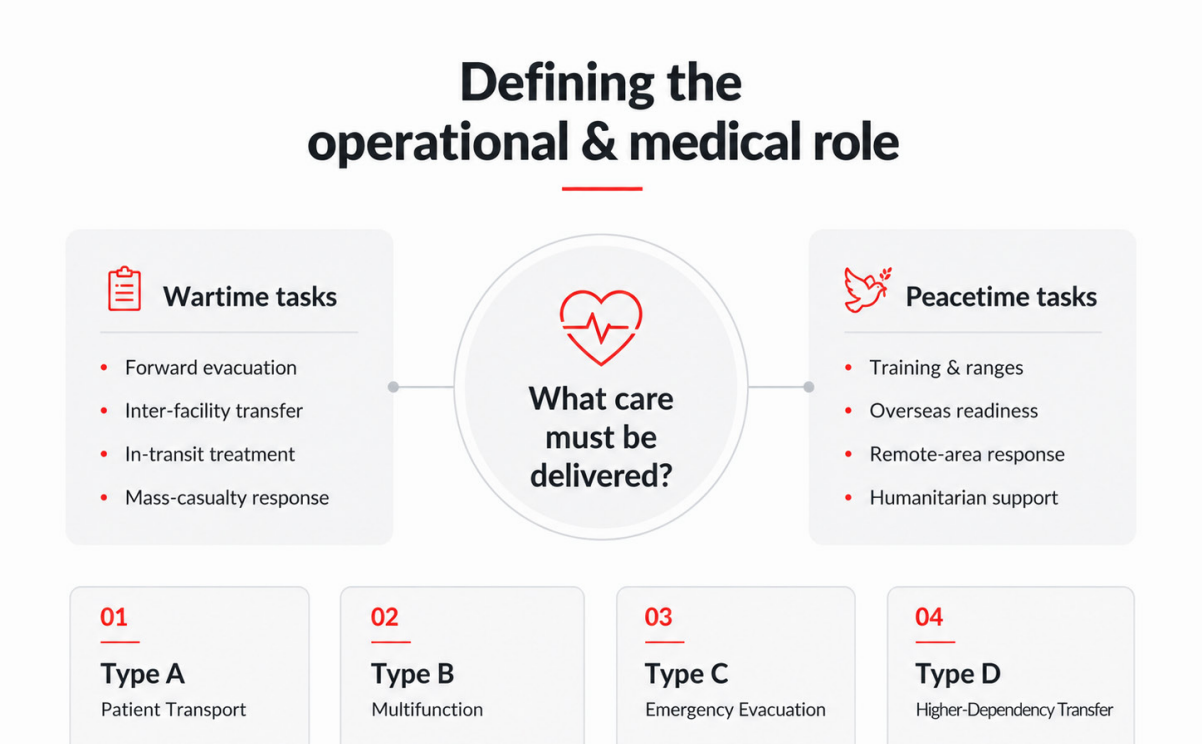
03 Defining the operational & medical role

The medical mission must drive the vehicle design. The casualty journey, patient condition and level of care required during movement determine the architecture, equipment fit, crew workspace and vehicle interfaces.

In conflict, the BFA must move casualties safely through the medical evacuation chain while sustaining the required level of care. Its tasks may include collection from forward locations, transfer to treatment facilities, onward movement of stabilised patients, mass-casualty response, day-and-night operation over difficult terrain, and coordination with the wider medical evacuation system.

In peacetime, the same fleet can strengthen training, readiness and national resilience. Reconfigurable interiors and mission-specific equipment packs can support ranges, overseas deployments, remote-area response and humanitarian assistance without compromising the vehicle's primary operational role.

NATO defines four ambulance roles, each demanding a different balance of space, equipment and clinical capability. Type A provides patient transport; Type B combines primary healthcare and evacuation; Type C supports specialist emergency evacuation; and Type D provides medium or high-dependency care between facilities. Selecting the primary role—and the secondary roles it can realistically support—will establish the vehicle's design priorities.



A tightly defined mission turns broad ambition into clear engineering requirements. It establishes casualty configurations, medic access, treatment needs, power and communications, turnaround time, and the mobility and protection the vehicle must sustain.

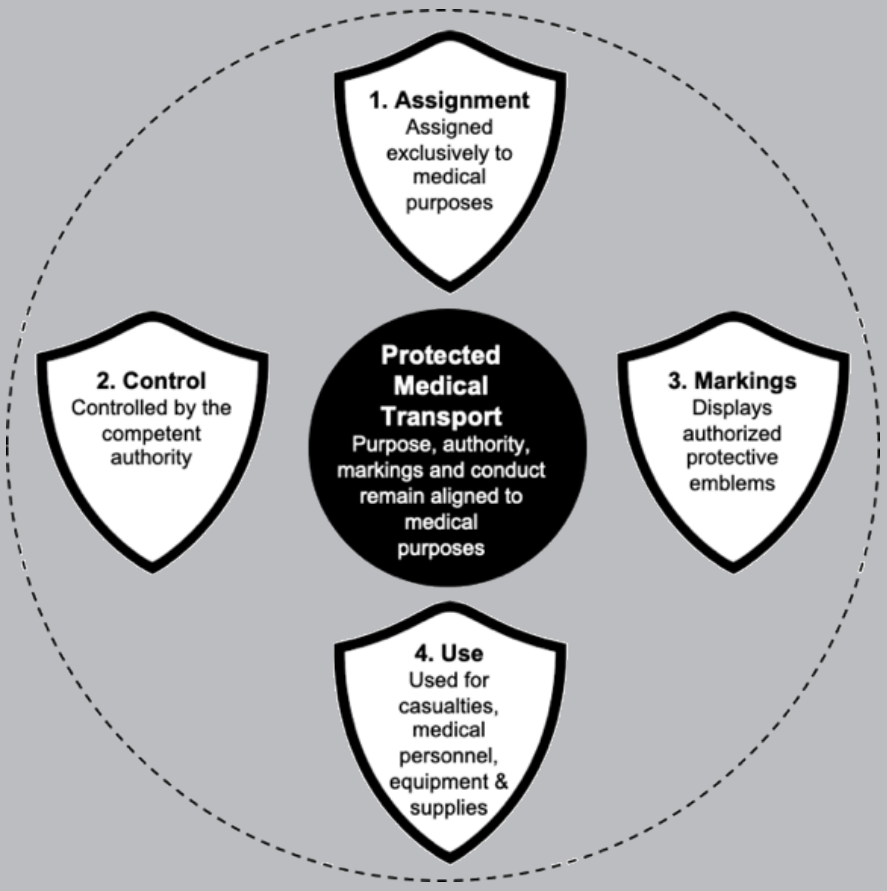
04 Geneva Conventions Protection

Protected medical status must be designed into the vehicle and sustained throughout its operation.

The Geneva Conventions protect vehicles assigned exclusively to medical transport and controlled by the competent authority. Within that role, a Battlefield Ambulance may carry wounded or sick personnel, authorised medical and religious personnel, and the equipment and supplies needed to support their care.

Protective emblems carry clear legal meaning. The red cross, red crescent and red crystal identify protected medical services; their display is strictly controlled and must never be mistreated.

Protection depends on how the vehicle is used as well as how it is marked. Using a protected ambulance to transport fit troops, ammunition or general stores—or for reconnaissance, command or offensive support—would conflict with its medical status. The temporary carriage of weapons removed from casualties does not, by itself, remove that protection.



The vehicle's design and operating controls must make its status unambiguous. Authorised markings, controlled equipment configurations, operating procedures, records and crew training must keep the vehicle's presentation aligned with its assigned task.

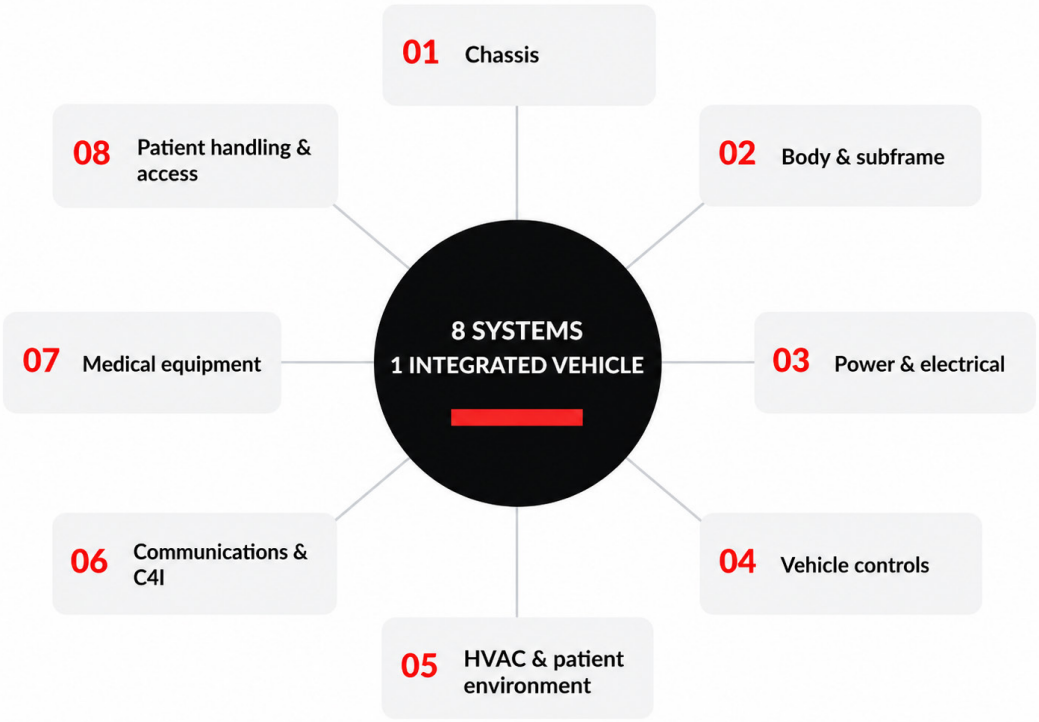
A reconfigurable vehicle can support different tasks, but its legal status follows its authorised assignment and actual use. Any formal change of role must therefore be accompanied by the appropriate changes to tasking, configuration and markings.

Protection depends on four elements working together: medical assignment, competent control, authorised markings and compliant use.

05 Engineering the complete vehicle

A Battlefield Ambulance succeeds when eight interdependent systems operate as one integrated vehicle.

EKA can provide the UK integration layer connecting EMPL's ambulance expertise and SDE's assurance capability with the OEM's common platform. Working within the OEM's Design Authority, EKA can coordinate a defined integration package across vehicle interfaces, specialist suppliers, equipment installation, build, trials and through-life support.



Structural integration protects both vehicle performance and medical capability. The body and subframe must accommodate chassis movement without compromising strength, access or equipment alignment. Casualties, medical equipment, oxygen, water and protection systems must remain within payload and axle limits, while body height and centre of gravity influence mobility, stability and transportability.

The patient environment must support safe care under realistic operational conditions. Engine-independent heating, cooling and ventilation must work alongside lighting, medical gases, secure equipment stowage and onboard power. The layout must enable medics to handle casualties safely, work while seated and wearing PPE, and reconfigure the compartment for different patient loads.

Power, controls and communications create dependencies across the complete vehicle. EMPL can prepare physical and electrical interfaces for radios and C4I; EKA can coordinate their integration with the OEM and UK suppliers; and SDE can influence equipment location, cable routing, bonding, earthing and separation before EMC/E3 trials.

Human Factors converts system performance into operational effectiveness. The design must support the complete task—from preparing the vehicle and loading casualties to in-transit care, unloading, replenishment, cleaning and maintenance.

Integration risk sits at the interfaces. Resolving those interfaces early protects vehicle performance, the trials programme and confidence in delivery.

"Effective integration turns specialist systems into one dependable Battlefield Ambulance".

06 Performance priorities and trade-offs

The strongest Battlefield Ambulance design delivers the required level of care while preserving mobility, protection, availability and capacity for future change.

NATO guidance establishes a demanding baseline for the complete vehicle. It covers day-and-night, all-terrain operation; safe stretcher handling and restraint; effective communications; treatment lighting; engine-independent climate control; adequate power; secure equipment stowage; and mobility and protection appropriate to the wider fleet. The patient environment must also support clear communication between the crew and casualties, with an intercom available where operating noise makes this necessary.

Performance must be demonstrated through realistic mission scenarios, not static layouts alone. A design that appears effective at rest can expose weaknesses, for example, when a stretcher is loaded on a slope, a medic works while seated, climate control operates with the engine off or the vehicle crosses difficult terrain.

Every increase in capability draws on finite vehicle capacity. More casualties can reduce treatment access; greater protection can consume payload and affect ride quality; and automated casualty handling can improve safety while adding weight, power demand and maintenance complexity. The objective is to optimise the complete vehicle around its defined medical mission.

Design priority	Operational value	Trade-off to manage
1. Clinical capability	More monitoring and treatment during movement	Equipment, energy, workspace, training and support demand
2. Casualty capacity	Greater lift per sortie and surge utility	Reduced treatment access, stowage and medic space
3. Mobility and protection	Keeps pace and survives within the fleet	Ride quality, payload, fuel use and internal volume
4. Patient workspace	Safer handling, restraint and clinical activity	Vehicle height, mass, centre of gravity and transportability
5. Automated handling	Faster loading and lower manual-handling risk	Weight, power, maintenance and recovery from failure
6. Modularity and growth	Reconfiguration and future equipment change	Interface weight, configuration control and verification
7. Fleet commonality	Shared training, spares and infrastructure	Risk of constraining a safety-critical specialist role

The EKA–EMPL partnership is equipped to resolve these competing demands as one vehicle-level engineering challenge. Working within the OEM's Design Authority, the team can connect each design decision to its effect on operational performance, programme risk and acceptance.

07 Lessons from EMPL's ambulance experience

EMPL turns each customer's medical mission into an ambulance body engineered for the chosen chassis, operating environment and production model.

498
ambulances delivered since 2009

294
bodies for the German Armed Forces

8
countries

EMPL brings extensive experience across off-road ambulances, fixed and interchangeable bodies, mobile medical systems and military production. Its designs incorporate lightweight sandwich construction, mounting systems engineered for chassis torsion, safe stretcher loading, reconfigurable accommodation, secure stowage, climate control, medical gases and electrical interfaces. CBRN protection can also be integrated where the mission demands it.

Since 2009, EMPL has delivered 498 ambulances to defence, armed-forces and civil-protection customers. Deliveries span Germany, Austria, Latvia, Lithuania, Hungary, the United Arab Emirates, Jordan and Burkina Faso—demonstrating experience across different climates, operating requirements and procurement models.

The German Armed Forces programme provides compelling evidence of production at scale. EMPL produced 294 ambulance box bodies within a framework agreement covering up to 500 partially militarised, off-road patient-transport vehicles. The completed vehicle's clinical accommodation is based substantially on Type C ambulance requirements and can support the treatment of a patient requiring intensive care.

Clinical users influence EMPL's ambulance designs from the outset. Close cooperation with emergency medical personnel shapes patient access, equipment positioning and working space. Purpose-designed loading aids accommodate commonly used stretcher types, while the body and its systems are engineered for demanding climates and difficult terrain.

Experience across defence, firefighting and civil vehicles strengthens the complete solution. It gives EMPL wider harsh-duty systems knowledge in electrics, hydraulics, lighting and communications interfaces, together with a detailed understanding of the militarisation requirements that distinguish a battlefield vehicle from a conventional ambulance conversion.

> ***"Each vehicle should be tailored to the customer's mission and validated on the physical platform before series production begins."***
>
> ***Joe Empl, CEO, EMPL***

08 From concept to accepted capability

Confidence in delivery grows as requirements, engineering decisions and acceptance evidence mature together.

Development must begin with the ambulance mission, users and clear requirements. Before detailed layout starts, the team should establish mass, power, data and thermal budgets, allocate every interface and define how each critical requirement will be demonstrated.

Digital engineering can evaluate options quickly, but the physical vehicle remains decisive. OEM data and 3D models support packaging and interface design, yet the actual chassis can reveal differences in mounting points, harnesses, clearances and service access that are difficult to identify digitally.

A production-representative pre-series vehicle is the strongest defence against late redesign. EMPL favours this approach because it allows medics, drivers and maintainers to evaluate casualty loading, treatment access, egress, replenishment and maintenance before serial production begins. The resulting evidence can refine the design, reduce retrofit and protect the production schedule.

EKA, EMPL and SDE can connect vehicle development directly to acceptance. EMPL can resolve ambulance-body architecture and fixed systems; EKA can coordinate chassis integration, specialist suppliers, build and configuration control; and SDE can embed systems engineering, safety, environmental compliance, Human Factors, EMC/E3 and verification throughout the programme.

> ***"Acceptance evidence starts while the design is still open."***

EKA and SDE have applied this integrated approach on the British Army's M270 A2 MLRS Repair & Recovery Vehicle programme. Vehicle modification, UK road-use compliance, Human Factors, equipment restraint and EMC/E3 were addressed through one coordinated process. The transferable lesson is clear: design, physical integration and assurance must progress together.

1. Define	2. Architect	3. Design	4. Prove	5. Accept
Mission, users & requirements	Budgets, systems & interfaces	Digital integration and HFI	First vehicle and user evaluation	Trials and repeatable production

CONTINUOUS ASSURANCE: REQUIREMENTS | SAFETY | HUMAN FACTORS | EMC/E3 | VERIFICATION & TRIALS

09 Integrated delivery, clear accountability

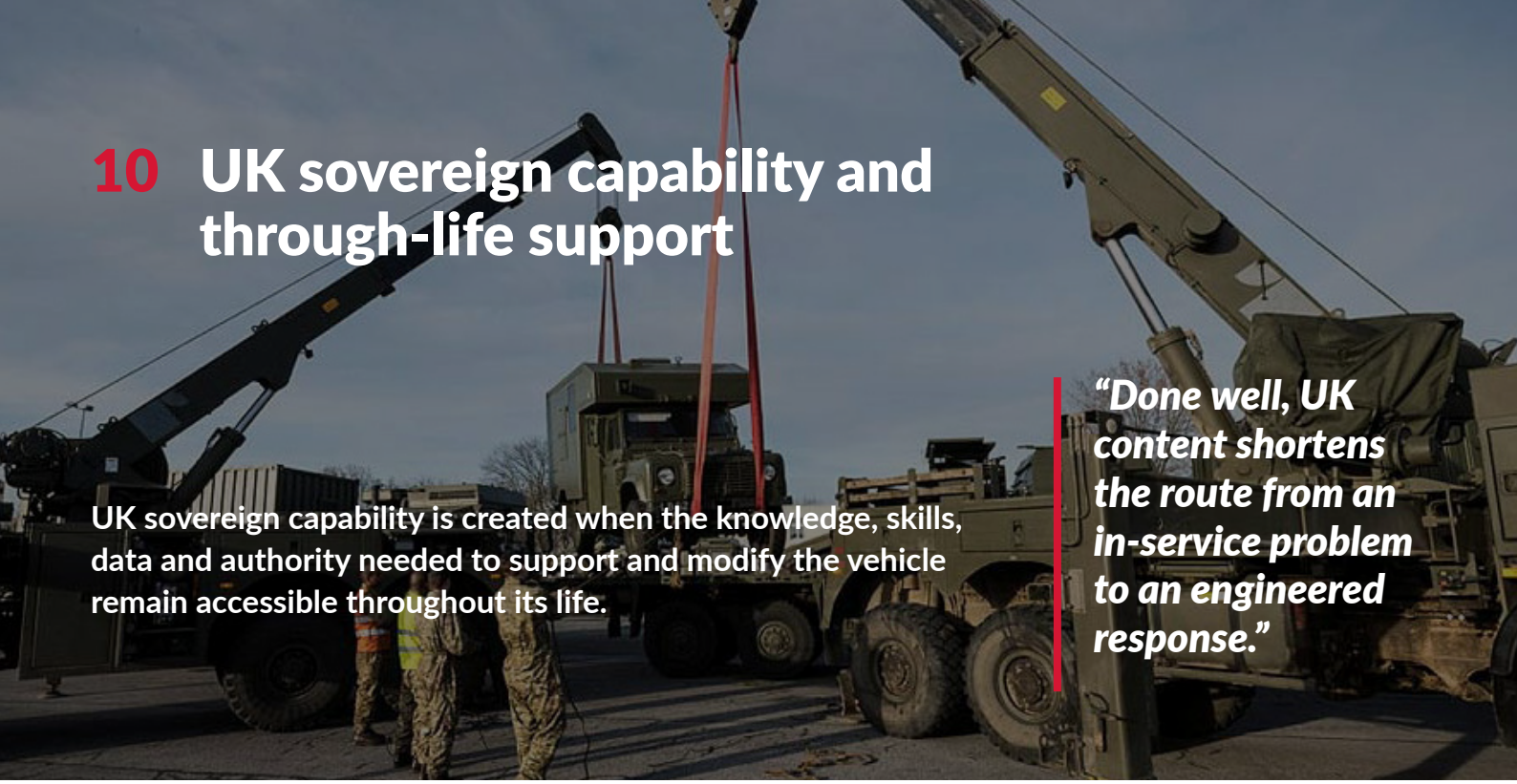
The EKA–EMPL partnership gives OEMs one coordinated route to an engineered ambulance solution, UK integration, assurance and through-life support.

Clear ownership at every interface protects delivery. The OEM retains control of the common platform, fleet-wide interfaces, whole-vehicle performance and overall Design Authority. EMPL can take responsibility for the agreed ambulance-body architecture and fixed body systems, while EKA can lead a defined UK integration package covering role equipment, specialist suppliers, build support and through-life engineering. SDE, within EKA Group Holdings, can embed the systems and assurance evidence required for design decisions, trials and acceptance.

The delivery package can scale around the OEM's strategy. Options range from direct procurement of an EMPL body followed by EKA integration, to an EKA-managed systems-prepared body and UK fit-out, or a more complete EMPL package supported by EKA and SDE at whole-vehicle level. Whichever model is selected, every interface must have one accountable owner, a defined evidence obligation and a controlled route for change.

	Principal responsibility	Value to the OEM
OEM/Design Authority	Common platform, fleet interfaces, vehicle performance and acceptance strategy	Control of the fleet architecture and OEM obligations
EMPL	Ambulance body, subframe, clinical accommodation, fixed services & production evidence	Established ambulance engineering and production
EKA	UK integration, vehicle marriage, role equipment, suppliers, build, Post Design Services and customer interface	An accountable UK specialist-variant work package
SDE	Systems engineering, safety, environmental assurance, Human Factors, EMC/E3, verification, trials and acceptance evidence	Variant risk identified early and evidence connected to requirements

The workshare may change, but accountability cannot. The result is one integrated vehicle, one coherent evidence baseline and clear accountability from concept through support.



10 UK sovereign capability and through-life support

UK sovereign capability is created when the knowledge, skills, data and authority needed to support and modify the vehicle remain accessible throughout its life.

"Done well, UK content shortens the route from an in-service problem to an engineered response."

The EKA–EMPL partnership is built on twenty years of practical delivery. The relationship dates to 2006 and the Support Vehicle (Recovery), or SV(R), programme, for which EMPL supplied approximately 300 vehicle locker sets to EKA. That established working relationship has now developed into a formal partnership, giving an LMV bidder an experienced industrial team rather than an untested supply chain.

EKA can anchor the specialist-variant capability in the UK. EKA focuses on special-to-role vehicle capabilities for defence applications, including chassis integration, military vehicle systems and load-handling equipment. The company brings deep expertise in mission-specific variants, supported by cradle-to-grave capability spanning design, development, integration, manufacture, in-service support and lifecycle management. EKA works with vehicle OEMs to achieve greater capability performance, ensuring an optimised integrated solution for any given platform. This is underpinned by a mature understanding of military operational need, supportability and lifecycle performance.

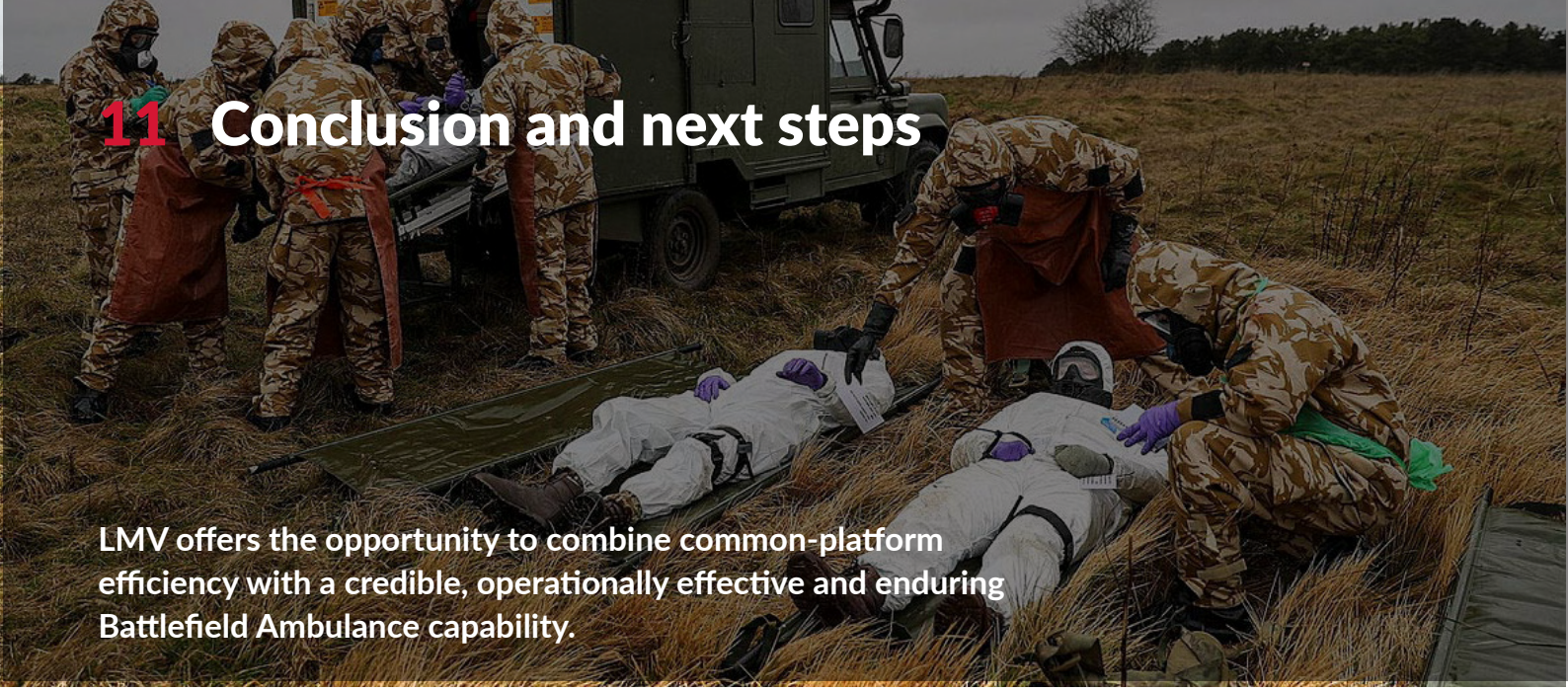
SDE adds enduring UK assurance expertise within EKA Group Holdings. Safety, Human Factors, environmental compliance, EMC/E3 and verification evidence can remain aligned as requirements, equipment and vehicle configurations evolve.

Through-life readiness begins during design. The published LMV procurement includes Post Design Services and could extend to May 2047. Medical and communications equipment will change more rapidly than the chassis, while HVAC, batteries, lighting and control systems will face obsolescence. Technical publications, training, spares, tooling, software, repair arrangements and configuration records must therefore mature alongside the physical vehicle.

UK content delivers its greatest value when it creates the knowledge and authority to sustain capability throughout the vehicle's life.

UK OPERATIONAL RESILIENCE: FASTER SUPPORT + CONTROLLED CHANGE + FLEET AVAILABILITY					
THROUGH-LIFE SERVICE	Integrate	Accept	Train	Support	Upgrade
SOVEREIGN FOUNDATIONS	Design knowledge	Data and IP	UK skills	Tooling & supply	Configuration evidence

EMPL EXPERTISE + EKA UK DELIVERY + SDE ASSURANCE



11 Conclusion and next steps

LMV offers the opportunity to combine common-platform efficiency with a credible, operationally effective and enduring Battlefield Ambulance capability.

THREE PRINCIPLES DEFINE A STRONG SOLUTION

01

Define the medical mission before fixing the vehicle architecture. The casualty journey, patient condition and required level of care must determine the body, internal layout, equipment, crew workspace and vehicle interfaces.

02

Engineer the complete vehicle as one system. The body and subframe, chassis, power, HVAC, communications, medical equipment, patient handling and vehicle controls must work together without compromising mobility, protection, usability or supportability.

03

Develop assurance and through-life support alongside the design. Requirements, hazards, Human Factors, EMC/E3, verification and support evidence must influence engineering decisions while the configuration remains open to change.

The EKA–EMPL partnership gives OEMs a credible route from medical requirement to supported vehicle capability. EMPL contributes extensive ambulance architecture and production experience. EKA provides UK integration leadership, practical specialist-vehicle engineering and enduring support. SDE, as part of EKA Group Holdings, connects systems engineering, safety, Human Factors, EMC/E3 and trials to a coherent acceptance evidence base.

For an OEM bidder, the result is a stronger and more differentiated specialist-variant offer. Vehicle integration, assurance, production readiness and UK support can be developed as one package, with clear responsibility at every interface and the OEM retaining overall Design Authority.

Early engagement protects design freedom and reduces later change. It allows the team to assess platform margins and physical interfaces, align the medical role with a realistic architecture, plan the pre-series vehicle, define the acceptance strategy and agree meaningful UK responsibility before key decisions become difficult or expensive to reverse.

> ***"A battlefield ambulance must be engineered as one system from the outset."***
>
> ***Michael Keech, CEO, EKA Group Holdings***

The next step is a focused technical discussion with an EKA Group Holdings programmes representative
Email: info@ekalimited.com